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PTO/SB/81 (05-03)

Approved for use through 11/30/2005. OMB 0651-0035  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

## POWER OF ATTORNEY OR AUTHORIZATION OF AGENT

Application Number	
Filing Date	
First Named Inventor	Mohamed Y. Soliman, et al
Title	Methods for Geomechanical
Art Unit	
Examiner Name	
Attorney Docket Number	2003-IP-011150U1

I hereby appoint:

Practitioners at Customer Number



Place Customer Number Bar Code Label here

OR

Practitioner(s) named below:

Name	Registration Number
See attached	

as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Please change the correspondence address for the above-identified application to:

The above-mentioned Customer Number.

OR

Practitioners at Customer Number.



Place Customer Number Bar Code Label here

OR

Firm or Individual Name

Address

Address

City

State

Zip

Country

Telephone

Fax

I am the:

Applicant/Inventor.

Assignee of record of the entire interest. See 37 CFR 3.71.  
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

### SIGNATURE of Applicant or Assignee of Record

Name Robert A. Kent

Signature Robert A. Kent

Date 3-19-04

Telephone 580-251-3125

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below\*.

\*Total of \_\_\_\_\_ forms are submitted.

This collection of information is required by 37 CFR 1.31 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Please type a plus sign (+) inside this box →

PTO/SB/02C (3-07)

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**REGISTERED PRACTITIONER  
INFORMATION  
(Supplemental Sheet)**

Name	Registration Number	Name	Registration Number
Halliburton Energy Services, Inc. Practitioners		Baker Botts Practitioners	
William E. Shull	29,438	Mitchell D. Lukin	30,772
William M. Imwalle	35,904	Carey C. Jordan	47,646
Robert A. Kent	28,626	Iona Kaiser	53,086
Craig W. Roddy	36,256		
John W. Wusternberg	35,415		

**Section 11 Statement:** This form is estimated to take 0.4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments or the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20591. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20591.

Declaration — Registered Practitioner Information (Supplemental Sheet) (PTO/SB/02C)(1-1.4)



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**STATEMENT UNDER 37 CFR 3.73(b)**Applicant/Patent Owner: Mohamed Y. Soliman, et alApplication No./Patent No.: Unknown Filed/Issue Date: Concurrently HerewithEntitled: Methods for Geomechanical Fracture ModelingHalliburton Energy Services, Inc., a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1.  the assignee of the entire right, title, and interest; or2.  an assignee of less than the entire right, title and interest.The extent (by percentage) of its ownership interest is \_\_\_\_\_ %  
in the patent application/patent identified above by virtue of either:A.  An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.**OR**B.  A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

1. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

2. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

3. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached. Additional documents in the chain of title are listed on a supplemental sheet. Copies of assignments or other documents in the chain of title are attached.[NOTE: A separate copy (i.e., the original assignment document or a true copy of the original document)  
must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be  
recorded in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

3-19-04Date  
580-251-3125

Telephone number

Robert A. Kent

Typed or printed name

Signature

Senior Counsel

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

**ASSIGNMENT**

Whereas, I/We, **Mohamed Y. Soliman** of Denton County, Carrollton, Texas, **Loyd E. East, Jr.** of Denton County, Carrollton, Texas and **David Adams** of Harris County, Houston, Texas, have invented "**Methods for Geomechanical Fracture Modeling**" for which I have made application for Letters Patent of the United States; and

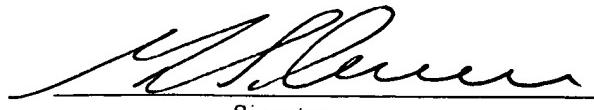
Whereas, **HALLIBURTON ENERGY SERVICES, INC.**, a Delaware Corporation, having a place of business at 10200 Bellaire Boulevard, Houston, Texas 77072 is desirous of acquiring an interest therein;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I/We, by these presents do sell, assign and transfer and convey unto **HALLIBURTON ENERGY SERVICES, INC.**, its successors and assigns, the full and exclusive right, for the United States of America and its territorial possessions and for any and all foreign countries, in and to the said invention, described in the Patent Application serial number **10/728,295** filed on **12/04/2003**, and any divisional, continuing or reissue application based on the present application preparatory to obtaining Letters Patent of the United States therefor; said invention, application and any and all Letters Patent issuing therefor to be held and enjoyed by **HALLIBURTON ENERGY SERVICES, INC.**, for its own use and behoof, and for its legal representatives, successors and assigns, to the full end of the term for which said Letters Patent may be granted, as fully and entirely as the same would have been held by me and had this assignment and sale not been made.

And I do further agree to sign all papers, make all rightful oaths and do all requisite acts for the filing of any disclaimer or for the filing and assignment of any divisional, continuing or reissue application or applications for patent based on the present application, as well as for any other U.S. or foreign application for patent which relates to the said invention.

And I do further agree to communicate to **HALLIBURTON ENERGY SERVICES, INC.**, its successors, assign or other legal representatives, such facts relating to the invention disclosed in the present application or Letters Patent issuing thereon as may be known to me, and to testify as to such facts in any interference or other litigation.

Executed this 2<sup>nd</sup> day of January, 2004, at Carrollton, Denton County, Texas, U.S.A.

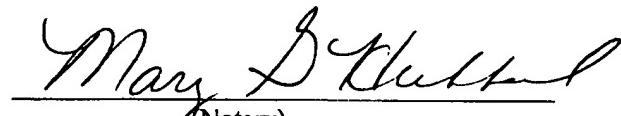


Signature

STATE OF TEXAS                  )  
                                      ) ss  
COUNTY OF DENTON              )

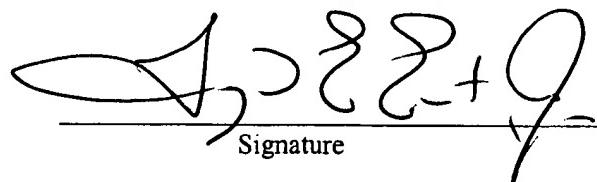
Before me personally appeared said Mohamed Y. Soliman and acknowledged the foregoing instrument to be his free act and deed this 2<sup>nd</sup> day of January, 2004.

Seal



(Notary)

Executed this 2<sup>nd</sup> day of January, 2004, at Carrollton, Denton County, Texas, U.S.A.

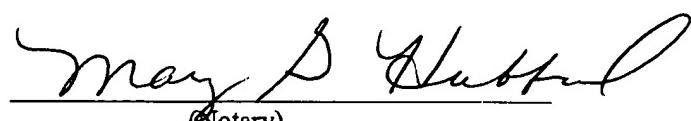


Signature

STATE OF TEXAS                  )  
                                      ) ss  
COUNTY OF DENTON              )

Before me personally appeared said Loyd E. East, Jr. and acknowledged the foregoing instrument to be his free act and deed this 2<sup>nd</sup> day of January, 2004.

Seal



(Notary)

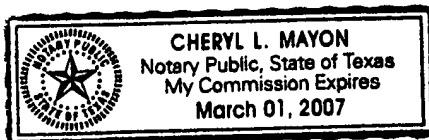
Executed this 5<sup>TH</sup> day of January, 2004, at Houston, Harris County, U.S.A.

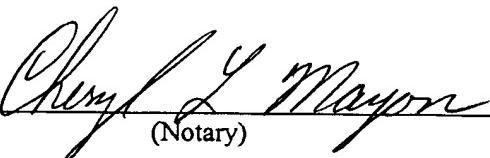
  
\_\_\_\_\_  
Signature

STATE OF TEXAS                         )  
  )  
COUNTY OF HARRIS                         )

Before me personally appeared said **David Adams** and acknowledged the foregoing instrument to  
be his free act and deed this 5<sup>TH</sup> day of January, 2004.

Seal



  
\_\_\_\_\_  
(Notary)



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PTO/SB/01 (08-03)

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## DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

Declaration Submitted With Initial Filing

OR

Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number	2003-IP-011150U1
First Named Inventor	Mohamed Y. Soliman
COMPLETE IF KNOWN	
Application Number	10/728,295
Filing Date	12/4/2003
Art Unit	
Examiner Name	

I hereby declare that:

Each inventor's residence, mailing address, and citizenship are as stated below next to their name.

I believe the inventor(s) named below to be the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Methods for Geomechanical Fracture Modeling

(Title of the Invention)

the specification of which

is attached hereto

OR

was filed on (MM/DD/YYYY) 12/4/2003 as United States Application Number or PCT International

Application Number 10/728,295 and was amended on (MM/DD/YYYY)   (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? Yes	Certified Copy Attached? No
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

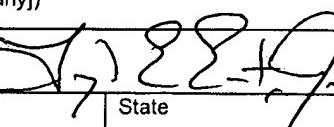
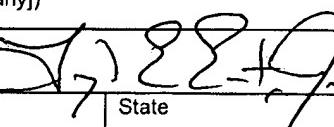
[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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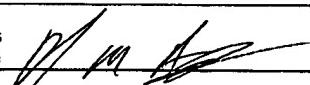
**DECLARATION — Utility or Design Patent Application**

Direct all correspondence to: <input type="checkbox"/> Customer Number: <input type="text"/> OR <input checked="" type="checkbox"/> Correspondence address below			
Name Halliburton Energy Services - ATTN: Robert A. Kent			
Address P.O. Box 1431			
City Duncan		State OK	ZIP 73536-0440
Country USA		Telephone 580-251-3125	Fax 580-251-3917
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.			
NAME OF SOLE OR FIRST INVENTOR: 		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any]) Mohamed Y.		Family Name or Surname Soliman	
Inventor's Signature 			Date 1-16-04
Residence: City Plano	State TX	Country USA	Citizenship US
Mailing Address 3617 S. Echo Trail			
City Plano	State TX	ZIP 75023	Country USA
NAME OF SECOND INVENTOR: 		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any]) Loyd E.		Family Name or Surname East	
Inventor's Signature 			Date 1-5-04
Residence: City Frisco	State TX	Country USA	Citizenship US
Mailing Address 1626 Natural Bridge			
City Frisco	State TX	ZIP 75034	Country USA
<input checked="" type="checkbox"/> Additional inventors or a legal representative are being named on the 1 supplemental sheet(s) PTO/SB/02A or 02LR attached hereto.			

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**DECLARATION****ADDITIONAL INVENTOR(S)  
Supplemental Sheet**

Page 1 of 1

<b>Name of Additional Joint Inventor, if any:</b>		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
Given Name (first and middle (if any))		Family Name or Surname	
David		Adams	
Inventor's Signature 		Date 1/5/04	
Katy Residence: City 24211 Chesterton Court	TX State	USA Country	US Citizenship
Mailing Address			
Mailing Address			
Katy City	TX State	77494 Zip	USA Country
<b>Name of Additional Joint Inventor, if any:</b>		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
Given Name (first and middle (if any))		Family Name or Surname	
Inventor's Signature		Date	
Residence: City	State	Country	Citizenship
Mailing Address			
Mailing Address			
City	State	Zip	Country
<b>Name of Additional Joint Inventor, if any:</b>		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
Given Name (first and middle (if any))		Family Name or Surname	
Inventor's Signature		Date	
Residence: City	State	Country	Citizenship
Mailing Address			
Mailing Address			
City	State	Zip	Country

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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